

*$p(\text{God}) > 0$*   
*Assessment*  
*Report*

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## Assessment framework

- 1.1 I am NOT writing this report as a financial supervisor, nor as a representative of the Swedish Financial Supervisory Authority.
- 1.2 As a member of a team of supervisory experts I have had the opportunity to study internal models used by the insurance industry to calculate solvency capital requirement. Prior to getting an internal model approved, the model needs to successfully complete a rigorous assessment procedure. My contribution in those assessments has been to examine data quality and the tools and processes that lead up to the consolidated data used by the calculation kernel.
- 1.3 The internal models used by the insurance industry are models of reality. Based on the distribution of past events they calculate the probable distribution of future events and determine the effect those events would have on their business. Hence the capital required to continue to run a successful insurance business.
- 1.4 When data is missing, the insurance companies fill the gaps with assumptions and in order to get a model of reality approved those assumptions need to be reasonably justified.
- 1.5 A worldview is also a model of reality and when data is missing we fill in the gaps with assumptions. If the worldview is religious, the assumptions are called faith and are generally viewed as irrational. If the worldview is materialistic, the assumptions are called theories and are generally viewed as rational.
- 1.6 In this report, I assess two models of reality using the same assessment methodology as the one applied to the insurance industry. Note that the term *supervisors* in the text refers to a fictitious supervisory authority.

## Definitions

- 2.1 Religion<sup>1</sup> is defined as
1. the belief in a god or in a group of gods;
  2. an organized system of beliefs, ceremonies, and rules used to worship a god or a group of gods; or
  3. an interest, a belief, or an activity that is very important to a person or group<sup>2</sup>.
- 2.2 A theist<sup>3</sup> is a person who believes in the existence of one God as the creative source of the human race and the world. A theist thus holds that the probability of God is greater than zero, i.e.  $p(\text{God}) > 0$ .
- 2.3 A Christian<sup>4</sup> is a person who believes in the teachings of Jesus Christ, i.e.  $p(\text{Jesus is the Son of God}) > 0$ .
- 2.4 An agnostic<sup>5</sup> is a person who is not committed to believing in either the existence or the nonexistence of God.
- 2.5 An atheist<sup>6</sup> is a person who holds that the probability of God is not greater than zero, i.e.  $p(\text{God}) = 0$ . This is usually referred to as a person who believes that God does not exist. However, many atheists object to atheism being a system of belief<sup>7</sup>.
- 2.6 A New Atheist<sup>8</sup> is a person who does not believe in God and advocates that nobody else should either. New atheism is thus not new but rather a label used on contemporary atheists who are particularly outspoken against religion.
- 2.7 Atheists and New Atheists come in as many shapes and sizes as religious people and Christians. For the purpose of this assessment, we will use the terms **M-atheism** and **Theism** in the following manner:

<b>Theism<sup>9</sup></b>	<b>M-atheism</b>
p(God) > 0 p(Multiverse) = 0	p(God) = 0 p(Multiverse) > 0 <sup>10</sup>

- 2.8 In the theistic model, Cosmos<sup>11</sup> refers to one universe in which mankind exists, i.e. *our* universe. In the M-atheistic model, Cosmos may mean either our universe or the landscape of universes proposed by the multiverse theory. In both models Cosmos is understood as an ordered physical system.

<sup>1</sup> <http://www.merriam-webster.com/dictionary/religion>, accessed 2014-03-10

<sup>2</sup> <https://humanism.org.uk/>, accessed 2014-03-10

<sup>3</sup> <http://www.merriam-webster.com/dictionary/theism>, accessed 2014-03-10

<sup>4</sup> <http://www.merriam-webster.com/dictionary/christian>, accessed 2014-03-21

<sup>5</sup> <http://www.merriam-webster.com/dictionary/agnostic>, accessed 2014-03-10

<sup>6</sup> <http://www.merriam-webster.com/dictionary/atheist>, accessed 2014-03-10

<sup>7</sup> <http://rationalwiki.org/wiki/Atheist>, accessed 2014-03-10

<sup>8</sup> [http://rationalwiki.org/wiki/New\\_Atheism](http://rationalwiki.org/wiki/New_Atheism), accessed 2014-03-22

<sup>9</sup> *Theism* will be interchangeable with *Christianity*, but not all Christians hold that  $p(\text{Multiverse}) = 0$ .

<sup>10</sup> Hence the M-atheist as opposed to just any atheist.

<sup>11</sup> <http://www.merriam-webster.com/dictionary/cosmos>, accessed 2014-03-22

# Conceptual frameworks

3.1 The conceptual frameworks are the following:

	Theistic framework		M-atheistic framework
T01	Cosmos began to exist	A01	Cosmos (began to) exist(s)
T02	created by a loving God	A02	created by itself
T03	from absolutely nothing	A03	from virtually nothing
T04	for mankind	A04	without purpose
T05	whom He created	A05	inhabited by evolutionary accidents
T06	with free will and an immortal soul.	A06	whose ideas are illusory.

3.2 The theistic model thus claims that the supernatural and the natural coexist, whereas the M-atheistic model claims that nature is all there is.

3.3 The theistic model assumes that Cosmos began to exist whereas the M-atheistic model is unclear about the matter. Both assumptions are unjustified<sup>12</sup> but we observe that Cosmos exists so whether it began to exist or has always existed is at this point a minor issue.

T01	Cosmos began to exist	A01	Cosmos (began to) exist(s)
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3.4 At T02, the theistic model claims that something supernatural, God, created the cosmos. We observe that everything that begins to exist has a cause so creation is a minor issue. However, the same principle must be applied to God: What caused God? The theistic explanation is that God is a necessary being, one that (contrary to the universe) must exist necessarily without being caused. We view this as an extraordinary claim which will require an extraordinary explanation in order to be accepted as a justified assumption.

3.5 At A02, the M-atheistic model claims that Cosmos caused its own existence. We know of nothing that can create itself before it exists and find the claim to be logically incoherent.

T02	created by a loving God	A02	created by itself
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3.6 The theistic claim T03 that there was absolutely nothing natural before Cosmos came into existence is consistent with T01 but unjustified at this point.

3.7 The M-atheistic claim A03 that the starting point was something natural but incredibly small is consistent with the M-atheistic worldview that nature is all there is but a bit confusing because of A01 and A02. Was Cosmos virtually nothing<sup>13</sup> before it created itself or is virtually nothing referring to the beginning of our own universe only? The M-atheistic model refers to contemporary science which will need to be explained in more detail at a later point.

T03	from absolutely nothing	A03	from virtually nothing
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<sup>12</sup> Unjustified assumptions are yellow. If they are justified, the highlight changes to green. If they are contradicted or constitute a major problem in the model, the highlight changes to red.

<sup>13</sup> <http://www.merriam-webster.com/dictionary/nothing>

3.8 As regards the purpose or purposelessness of the cosmos, both models make unjustified assumptions: T02 is not explained and A02 is incoherent. On the other hand, both claims are consistent with their models. We thus regard these assumptions as minor issues at this point.

<b>T04</b>	<b>for mankind</b>	<b>A04</b>	<b>without purpose</b>
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3.9 In A05, the M-atheistic model assumes that mankind is an evolutionary accident, appearing and evolving in nature due to chance (random events), necessity (physical law) and natural selection<sup>14</sup>. However, the model lacks an explanation as to how life originated<sup>15</sup>. In science, this is an accepted procedure called inference to the best explanation. It is used to obtain a coherent explanation without requiring an infinite regress of explanations. We accept the scientific principle of inference to the best explanation and thus also accept the assumption in A05, but the assumption will need to be justified at some point.

3.10 Supervisors are required to ensure a level playing field when evaluating models of reality. Consequently, we must also accept the theistic assumption in 3.4 as a valid explanation without requiring an infinite regress of explanations. The claims that God created Cosmos and mankind are thus also accepted as coherent but unjustified assumptions.

<b>T02</b>	<b>created by a loving God</b>	<b>A02</b>	<b>created by itself</b>
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<b>T05</b>	<b>whom He created</b>	<b>A05</b>	<b>inhabited by evolutionary accidents</b>
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3.11 The last assumptions of free will and an immortal soul in the theistic model T06 are consistent with the rest of the conceptual framework, but unjustified at this point<sup>16</sup>.

3.12 The M-atheistic claim A06 that man’s ideas are illusory is consistent with A05 but self-contradictory<sup>17</sup>. Furthermore, a model which by its own definition is illusory can hardly be approved as a model of reality.

3.13 Assessment of the conceptual framework of the two models thus concludes with the following:

	<b>Theistic framework<sup>18</sup></b>		<b>M-atheistic framework</b>
<b>T01</b>	<b>Cosmos began to exist</b>	<b>A01</b>	<b>Cosmos (began to) exist(s)</b>
<b>T02</b>	<b>created by a loving God</b>	<b>A02</b>	<b>created by itself</b>
<b>T03</b>	<b>from absolutely nothing</b>	<b>A03</b>	<b>from virtually nothing</b>
<b>T04</b>	<b>for mankind</b>	<b>A04</b>	<b>without purpose</b>
<b>T05</b>	<b>whom He created</b>	<b>A05</b>	<b>inhabited by evolutionary accidents</b>
<b>T06</b>	<b>with free will and an immortal soul.</b>	<b>A06</b>	<b>whose ideas are illusory.</b>

<sup>14</sup> <http://evolution.berkeley.edu/evosite/evo101/index.shtml>, accessed 2014-03-18

<sup>15</sup> <http://evolution.berkeley.edu/evosite/evo101/IE2aOriginoflife.shtml>, accessed 2014-03-18

<sup>16</sup> From a supervisory point of view it is however encouraging that the model claims that man is equipped with free will which enables human beings, for instance supervisors, to assess models and reach conclusions.

<sup>17</sup> “My claim is an illusion, therefore it is true.”

<sup>18</sup> Most Christians are perfectly content with believing in a coherent conceptual framework. Some Christians go one step further and engage in apologetics, i.e. intellectual defense of faith.

- 3.14 The conceptual framework of the theistic model of reality is coherent but all the assumptions in the model need to be justified.
- 3.15 The conceptual framework of the M-atheistic model of reality is incoherent in that it assumes that
1. an effect can be its own cause, i.e. that something can cause itself (A02),
  2. the ideas of mankind are illusory, which implies that so is the model (A06).

## Feedback 1 – Status after assessment of the conceptual frameworks

The conceptual framework of the theistic model is coherent.

### *Theistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	T01	Minor	The assumption that Cosmos began to exist needs to be justified.	Not resolved
2	T02	Minor	The assumption that Cosmos was created by God needs to be justified.	Not resolved
3	T02	Minor	The assumption that God is loving needs to be justified.	Not resolved
4	T03	Minor	The assumption that Cosmos was created from absolutely nothing needs to be justified.	Not resolved
5	T04	Minor	The assumption that Cosmos was created for mankind needs to be justified.	Not resolved
6	T05	Minor	The assumption that mankind was created by God needs to be justified.	Not resolved
7	T06	Minor	The assumption that humans have free will needs to be justified.	Not resolved
8	T06	Minor	The assumption that humans have an immortal soul needs to be justified.	Not resolved

The conceptual framework of the M-atheistic model is incoherent with one assumption which contradicts itself (A02) and one assumption which contradicts the entire model (A06).

### *M-atheistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	A01	Minor	Whether Cosmos began to exist or has always existed needs to be resolved.	Not resolved
2	A02	Major	The assumption that Cosmos created itself before it existed needs to be justified.	Not resolved
3	A03	Minor	The assumption that Cosmos was created from virtually nothing needs to be justified.	Not resolved
4	A04	Minor	The assumption that Cosmos is without purpose needs to be justified.	Not resolved
5	A05	Minor	The assumption that mankind is an evolutionary accident needs to be justified.	Not resolved
6	A06	Major	The assumption that the ideas of humans are illusory needs to be justified.	Not resolved. If the assumption is justified, the model fails. If the assumption is contradicted, the justifications for A04 and A05 require further analysis.

# Narratives

## The theistic narrative

T07	First, there was absolutely nothing.
T08	Then God created the heaven and the earth.
T09	And the earth was without form, and void; and darkness upon the face of the deep. And the Spirit of God moved upon the face of the waters.
T10	And God said, Let there be light: and there was light.
T11	And God saw the light, that [it was] good: and God divided the light from the darkness.
T12	And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.
T13	And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters. And God made the firmament, and divided the waters which [were] under the firmament from the waters which [were] above the firmament: and it was so. And God called the firmament Heaven. And the evening and the morning were the second day.
T14	And God said, Let the waters under the heaven be gathered together unto one place, and let the dry [land] appear: and it was so. And God called the dry [land] Earth; and the gathering together of the waters called he Seas: and God saw that [it was] good.
T15	And God said, Let the earth bring forth grass, the herb yielding seed, [and] the fruit tree yielding fruit after his kind, whose seed [is] in itself, upon the earth: and it was so. And the earth brought forth grass, [and] herb yielding seed after his kind, and the tree yielding fruit, whose seed [was] in itself, after his kind: and God saw that [it was] good. And the evening and the morning were the third day.
T16	And God said, Let there be lights in the firmament of the heaven to divide the day from the night; and let them be for signs, and for seasons, and for days, and years: And let them be for lights in the firmament of the heaven to give light upon the earth: and it was so. And God made two great lights; the greater light to rule the day, and the lesser light to rule the night: [he made] the stars also. And God set them in the firmament of the heaven to give light upon the earth, And to rule over the day and over the night, and to divide the light from the darkness: and God saw that [it was] good. And the evening and the morning were the fourth day.
T17	And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl [that] may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that [it was] good. And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth. And the evening and the morning were the fifth day.
T18	And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so. And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that [it was] good.
T19	And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his [own] image, in the image of God created he him; male and female created he them.
T20	And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

## The M-atheistic narrative

A07	First, there was virtually nothing which had created itself before it existed.
A08	Then there was an inflating multiverse.
A09	Then, 13.85 billion years ago at time $10^{-43}$ seconds, quantum vacuum fluctuated. The fluctuation ended at time $10^{-36}$ seconds.
A10	Then, at time $10^{-35}$ seconds, inflation started and shortly thereafter, at time $10^{-32}$ seconds, inflation made the universe $10^{87}$ times larger, which explains the background radiation in space.
A11	Then, between time $10^{-30}$ seconds and $10^{10}$ seconds, the natural constants formed.
A12	Then, during approximately one second, elementary particles and force carriers formed.
A13	Shortly thereafter, within a second, protons formed to become the core of hydrogen.
A14	20 minutes later, neutrons and protons had formed to become the core of helium.
A15	380 000 years later, the cores had captured electrons and become hydrogen and helium atoms.
A16	Between 200 to 400 million years later, these atoms had interacted to become the first stars.
A17	After 3 billion years the stars had formed galaxies and the galaxies had formed galaxy clusters.
A18	Stars were born and died and as they died, they produced all the heavier atoms.
A19	Approximately 4.5 billion years ago, our own sun and solar system started forming.
A20	Approximately 4.4 billion years ago, water-rich asteroids collided with earth. As the earth cooled, water vapor escaped and condensed in the early atmosphere. Clouds formed and large amounts of rain fell on the earth. Water on earth and water in the atmosphere were separated.
A21	Approximately 3.75 billion years ago, separation of land masses and the formation of oceans began. Tectonic activity was high for the ensuing 1 billion years.
A22	The history of life on Earth began approximately 3.8 billion years ago. The origin of life is uncertain. One of the problems concerns where one should draw the line between biochemical reproducing life and chemical structures which can make copies of themselves. A living cell, even with minimum building blocks and functionality, is too complex to be used as a point of reference (or as definition) for first life. The first complex cells were prokaryotic, like bacteria. Multicellular life evolved a billion years later. The first life on Earth was marine life followed by terrestrial life appearing much later. Photo-plankton thrived in the oceans 850 million years ago and traces of organic life have been found in sediments that are 1 billion years old.
A23	Between 700 to 550 million years ago, oxygen levels in the atmosphere increased rapidly due to photosynthesis. An atmosphere composed of oxygen and nitrogen makes it transparent to light with wavelengths that the human eye can observe. Increasing levels of oxygen lead to increasing levels of phosphates which in turn made longer strings of DNA possible. Driven by random mutations in the existing code and random addition of new code, longer strings of complex code evolved. More complex and varied life made it possible for bigger species to evolve, thus further increasing the variation of eco-systems and the selective pressure for speciation.
A24	Due to the beneficial circumstances accounted for above, an abrupt appearance of new species occurred approximately 580 million years ago, The Cambrian Explosion. It started with invertebrate animals having exoskeletons, followed by fish 530 million years ago. Land plants evolved approximately 475 million years ago and forests appeared approximately 385 million years ago. Dinosaurs (the predecessors of birds), lived on earth 65 – 200 million years ago.
A25	Small mammals appeared approximately 200 million years ago. They stayed small until the extinction of the dinosaurs. Larger mammals then started evolving 65 million years ago.
A26	Mankind descends from a small mammal. Anatomically, Homo Sapiens is about 200 000 years old whereas the behavior of Homo Sapiens Sapiens (modern man), is about 50 000 years old.
A27	The behavior of modern man is due to biochemical reactions in his brain. These chemical reactions follow physical laws and take place in a brain which is the result of approximately 3.8 billion years of random changes acting in accordance with the laws of nature and a selective pressure for survival in eco-systems that also are the result of random changes, like meteor strikes or natural catastrophes. The thoughts generated by the brain consist of molecules (ions, chemical substances and proteins) being exchanged between brain cells. An idea is thus not abstract but physical and governed by chemistry in a configuration which is the result of random events. The idea that an idea is an idea is thus illusory. The idea that the conclusions generated by an assembly of such ideas are true is thus equally illusory. The choices or actions human beings make are thus not the result of free will but of chemistry governed by the laws of nature.

- 4.1 Our first observation is that both the theistic and the M-atheistic narratives are consistent with their conceptual frameworks. The theistic narrative is however at a very high level compared to the M-atheistic narrative which is much more granular.
- 4.2 Our second observation is that the two models differ in explanation as to the driving force of change. The theistic model consistently describes the major events as divine acts of volition whereas the M-atheistic model consistently explains the events as random (chance) but in accordance with physical laws (necessity).
- 4.3 Our third observation is that the two narratives basically tell the same story. We will therefore focus on the parts where the narratives deviate.

#### **Deviation 1 – Starting point**

- 4.4 The first deviation is the point of beginning, T07 and A07 respectively. The theistic model assumes that there was *absolutely* nothing prior to the beginning of Cosmos whereas the M-atheistic model assumes that there was *virtually* nothing prior to the beginning, i.e. something.
- 4.5 According to the BGV-theorem<sup>19</sup> (Borde-Guth-Vilenkin), Cosmos can not be infinite in the past. There are three reasons for this:
1. If the cosmos consists of cyclic universes, the entropy must increase for each cycle. If the cosmos were infinite in the past we would thus already find ourselves in a universe in complete entropy.
  2. If the cosmos consisted of a “cosmic egg” (a status quo condition for an eternity until it hatched 13.8 billion years ago), the forces that contributed to the status quo would rather cause the egg to implode than explode.
  3. If the cosmos consists of an inflationary multiverse with an ever increasing number of universes, the inflationary constant must be greater than zero (otherwise, the process would stop). But the effect of an inflationary constant greater than zero is that every bubble universe must give rise to more than one new bubble universe. This means that every previous state of the cosmos consists of fewer bubble universes, all the way down to the first solitary bubble.

Therefore, the cosmos can not be infinite in the past.

- 4.6 According to Constructor theory<sup>20</sup> changes occur when an external force affects a process or a condition, or when a process is repeated several times. The rationale for this is based on scientific research like the theory of evolution: There is always a non-zero probability that the wrong transformation will happen.
- 4.7 Since the cosmos can not be eternal in the past (BGV-theorem), and change is due to an external force affecting a process or a condition (Constructor theory), the only condition which can be eternal in the past is absolute nothingness and the only external force that can affect such a condition of nothingness is metaphysical. Science

<sup>19</sup> <http://www.arxiv.org/pdf/gr-qc/0110012.pdf>, accessed 2014-03-08

<sup>20</sup> <http://www.arxiv.org/pdf/1210.7439.pdf>, accessed 2014-03-08

therefore confirms that there must have been a transition from nothing to something when Cosmos began to exist.

- 4.8 Consequently, the theistic assumptions T01 and T03 are fully justified. Furthermore, the BGV-theorem and Constructor theory have brought some clarification to A01 in the conceptual framework of the M-atheistic model, making A01 both unambiguous and fully justified.

T01	Cosmos began to exist	A01	Cosmos began to exist
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T03	from absolutely nothing	A03	from virtually nothing
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- 4.9 We observe that it is difficult to distinguish between religious creation myths and the authority of scientific consensus at the narrative level, ref. 1.5.

### Deviation 2 – The creation event

- 4.10 The next point of deviation is the event of creation, T08 and A08. The theistic narrative claims that the metaphysical cause of the transition from nothing to something was God, but the narrative itself can offer no justification for this assumption. By contrast, the M-atheistic narrative claims that the transition was from something to something else, which has competing but reasonable explanations in the scientific community<sup>21</sup>. The assumption A03 is thus justified.

T03	from absolutely nothing	A03	from virtually nothing
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- 4.11 However, this further highlights the issue in the M-atheistic model about the lack of transition from nothing to something. The M-atheistic framework requires the cause of the transition to be physical, but this is contradicted by scientific theory, ref. 4.5 – 4.8, which proves that something physical can not be eternal in the past. Consequently, the cause of the transition from nothing to something must be metaphysical.

- 4.12 The metaphysical cause of Cosmos may either be a repetitive metaphysical process which went wrong (Constructor theory), or an act of volition by an immensely powerful, metaphysical and eternal being. We can not be biased towards either one of these explanations and thus not reject any of them. But from the facts presented we observe that an immensely powerful, metaphysical and eternal being has the same characteristics as the being that the theists believe in. The theistic assumption about God in T02 must therefore be regarded as justified.

T02	created by a loving God	A02	created by itself
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### Deviation 3 – Chronology of events

- 4.13 The third deviation between the narratives is the chronology of events. The theistic narrative T15 appears to be out of sequence with the M-atheistic narrative A22, where the first life on Earth is claimed to be marine life dating back as far as 1 billion years and with evidence of photo-plankton thriving in the oceans 850 million years ago.

<sup>21</sup> <http://home.web.cern.ch/about/physics/standard-model>

4.14 During 2009 – 2014, a number of researchers reported an abundance of geochemical and microfossil evidence that life inhabited the continents as far back as 2.2 billion years ago<sup>22</sup>.

4.15 The scientific evidence is thus ambiguous as to where life originated as well as to the definition of life itself. Consequently, we can not conclude that T15 is out of sequence.

#### **Deviation 4 – Time span**

4.16 The fourth deviation between the models is the time span between events. The theistic narrative claims that the process took six days whereas the M-atheistic narrative claims that the same process took almost 14 billion years. Despite the justified assumption that  $p(\text{God}) > 0$  (ref. 4.12), the claim is extraordinary in light of scientific observations and thus requires an extraordinary explanation.

4.17 The explanation we get is not extraordinary but linguistic. The Hebrew word for *day* used in Genesis 1 is *yôm*, a word which has four different literal definitions. It can mean *part of the daylight hours*, or *all of the daylight hours*, or *a 24-hour period*, or *a long but finite period of time*.

4.18 There is thus a reasonable explanation as to the time span between the events compared to observations made by contemporary science and we do not consider this issue a deviation between the two models (ref. 4.10).

#### **Deviation 5 – Driving force of change**

4.19 The fifth deviation between the models is the driving force of change, *God* according to the theistic model and *chance and necessity* according to the M-atheistic model. This deviation needs to be analyzed further in the assessment of the mathematical model.

#### **Deviation 6 – Description of mankind**

4.20 The sixth deviation is the description of mankind. The M-atheistic narrative regarding the origin of man starts with A22 and ends with A27. The incapability of the M-atheistic model to account for the origin of life is partly due to the fact that the definition of life has not been settled. This is thus a minor issue, ref. 3.10, 4.10 and 4.18.

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<sup>22</sup> Nature, The late Precambrian greening of the Earth, 8 July 2009, <http://www.nature.com/nature/journal/v460/n7256/full/nature08213.html>, accessed 2014-06-09  
 Nature, Earth's earliest non-marine eukaryotes, 26 May 2011, <http://www.nature.com/nature/journal/v473/n7348/full/nature09943.html>, accessed 2014-06-09  
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 Scientific American, Death Valley's First Life Came by Land, Not by Sea, 24 April 2014, <http://www.scientificamerican.com/article/death-valleys-first-life-came-in-by-land-not-by-sea>, accessed 2014-06-09

4.21 The scientific evidence for the M-atheistic narrative of evolution through chance and necessity is overwhelming<sup>23</sup>. The assumption A05 that mankind is the result of evolutionary accidents is thus fully justified.

T05	whom He created	A05	inhabited by evolutionary accidents
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4.22 The scientific evidence for the M-atheistic narrative of the human brain and its biochemical nature is also overwhelming<sup>24</sup>.

4.23 Thus, over the course of 3.8 billion years,

1. chance and necessity (evolution)
2. have produced a biochemical machine (the human brain)
3. which has produced a model of chance and necessity (evolution)
4. which ends in a biochemical machine (the human brain)
5. which works according to physical law (biochemistry)
6. and thus
  - a. has no free will (the only choice you could possibly make is the one you made), and
  - b. has no abstract ideas (biochemical reactions are physical).

4.24 Consequently, man's ideas<sup>25</sup> are illusory. What we perceive as *thought* and *choice* are simply biochemical reactions over which we have no control. We can not direct the chemicals, molecules, proteins and ions in our brains to take other paths or react in other ways than the physical laws of nature and the configuration of our brains dictate.

4.25 The assumption A06 that the ideas of mankind are illusory is thus fully justified. The conclusion that the M-atheistic model of reality insists that the M-atheistic model of reality is illusory is therefore inevitable, thus making the model incoherent.

T06	with free will and an immortal soul.	A06	whose ideas are illusory.
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4.26 The theistic narrative claims on the other hand that man was created with free will and an immortal soul. The assumption that humans have free will is supported by scientific experiments conducted by Benjamin Libet<sup>26</sup>:

1. Voluntary acts are preceded by a specific electrical change in the brain that begins 550 ms before the act. The volitional process is therefore **initiated unconsciously** by ions.
2. Humans become **aware of the intention to act** 350–400 ms after the electrical change starts, but 200 ms before the act.
3. The act is performed *unless* it is aborted.
4. Abortion of the intention to act is *not* preceded by an electrical change in the brain.

<sup>23</sup> <http://en.wikipedia.org/wiki/Evolution>

<sup>24</sup> [http://en.wikipedia.org/wiki/Human\\_brain](http://en.wikipedia.org/wiki/Human_brain)

<sup>25</sup> <http://www.merriam-webster.com/dictionary/idea>, accessed 2014-03-22

<sup>26</sup> <http://www.centenary.edu/attachments/philosophy/aizawa/courses/intros2009/libetjcs1999.pdf>, accessed 2014-03-18. Journal of Consciousness Studies, 6, No. 8–9, 1999, pp. 47–57.

4.27 Paragraph 4.26.1 justifies the M-atheistic assumption that humans are but physical biochemical machines and that free will is an illusion. For reasons unknown to us, proponents of the M-atheistic model of reality acknowledge the first two steps of Benjamin Libets' experiment but not the two last<sup>27</sup>.

4.28 Paragraph 4.26.4 similarly justifies the theistic assumption that humans have free will.

<b>T06</b>	with free will and an immortal soul.	<b>A06</b>	whose ideas are illusory.
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4.29 The narratives have thus led to the following assessment status:

	Theistic framework		M-atheistic framework
<b>T01</b>	Cosmos began to exist	<b>A01</b>	Cosmos began to exist
<b>T02</b>	created by a loving God	<b>A02</b>	created by itself
<b>T03</b>	from absolutely nothing	<b>A03</b>	from virtually nothing
<b>T04</b>	for mankind	<b>A04</b>	without purpose
<b>T05</b>	whom He created	<b>A05</b>	inhabited by evolutionary accidents
<b>T06</b>	with free will and an immortal soul.	<b>A06</b>	whose ideas are illusory.

4.30 The theistic assumptions that God created Cosmos from absolutely nothing and that man has free will have been fully justified.

4.31 The M-atheistic assumption regarding a transition from something to something else has also been fully justified, as well as the assumptions about the origins and nature of mankind. After the narrative, the M-atheistic model of reality is thus still incoherent in that it contradicts itself.

<sup>27</sup> <http://whyevolutionistrue.wordpress.com/2011/09/13/free-will-the-neuroscientists-versus-the-philosophers/>, accessed 2014-03-22

## Feedback 2 – Status after assessment of the narratives

Some assumptions in the theistic model have been satisfactorily justified whereas other assumptions remain unjustified.

### *Theistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	T01	Minor	The assumption that Cosmos began to exist needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	T02	Minor	The assumption that Cosmos was created by God needs to be justified.	<b>Resolved</b> 4.12 A transition from nothing to something requires volition by someone or something with the characteristics ascribed to God.
3	T02	Minor	The assumption that God is loving needs to be justified.	Not resolved
4	T03	Minor	The assumption that Cosmos was created from absolutely nothing needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that the transition must have been from absolutely nothing to something.
5	T04	Minor	The assumption that Cosmos was created for mankind needs to be justified.	Not resolved
6	T05	Minor	The assumption that mankind was created by God needs to be justified.	Not resolved
7	T06	Minor	The assumption that humans have free will needs to be justified.	<b>Resolved</b> 4.26 Benjamin Libet's experiment indicates that something other than biochemical processes act when a volitional motor action is aborted.
8	T06	Minor	The assumption that humans have an immortal soul needs to be justified.	Not resolved

The conceptual framework of the M-atheistic model is still incoherent. The assumption which contradicts itself (A02) has not been resolved and the assumption which contradicts the entire model (A06) has, curiously, been justified. Hence, the M-atheistic model of reality claims to be simply the result of physical law<sup>28</sup>.

On the other hand, randomly configured biochemical machines are much more likely to create incoherent models of reality than coherent ones<sup>29</sup>.

### *M-atheistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	A01	Minor	Whether Cosmos began to exist or has always existed needs to be resolved.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	A02 (A07-08)	Major	The assumption that Cosmos created itself before it existed needs to be justified.	Not resolved
3	A03	Minor	The assumption that Cosmos was created from virtually nothing needs to be justified.	<b>Resolved</b> 4.10 There are numerous scientific theories justifying the assumption that at some point in the history of Cosmos, there was a transition from something to something else.
4	A04	Minor	The assumption that Cosmos is without purpose needs to be justified.	Not resolved See also issue number 2. Issue numbers 2 and 4 probably depend on the same justification.
5	A05	Minor	The assumption that mankind is an evolutionary accident needs to be justified.	<b>Resolved</b> 4.21 The scientific evidence for evolution by way of chance and necessity is overwhelming. This assumption is extremely well justified.
6	A06	Major	The assumption that the ideas of humans are illusory needs to be justified.	<b>Showstopper</b> 4.22 – 4.24 The assumption is thoroughly justified. The model is the result of chance, see issue number 5.

<sup>28</sup> We doubt that the scientists who have contributed to the model are aware of this. We also doubt that they agree with the conclusion. However, from a materialistic point of view we find it difficult to interpret the results any other way.

<sup>29</sup> This simple observation alone makes us inclined to believe that the model is true. However, in the world of supervision, accepting incoherent models of reality is neither compatible with reason nor with the law. Outside the world of supervision, what does and does not constitute reason is another matter entirely.

## Mathematical model

- 5.1 The M-atheistic worldview assumes that nature is all there is whereas the theistic worldview assumes that the natural and the supernatural coexist. The mathematical model of reality must thus be based on that which the two models agree, which is nature.
- 5.2 The models of reality used in the insurance industry utilize the actual distribution of past events to calculate a probable distribution of future events. So will we.
- 5.3 In order for life to evolve, a number of sequenced events were required to produce an environment which was perfectly configured for intelligent life, i.e. not all configurations of the universe will permit life. The table below lists various characteristics of the universe, galaxy, solar system and Earth which need to have specific configurations in order to fall within life-permitting regions.

Characteristics in sequence	Probability
Initial conditions <sup>30</sup> (A09)	1 in $10^{10^{123}}$
Early universe (Planck Era) density <sup>31</sup> (A10)	1 in $10^{60}$
Strength of the cosmological constant <sup>32</sup> (A10)	1 in $10^{120}$
Configuration of natural constants <sup>33</sup> (A11)	1 in $10^{500}$
Configuration of galaxy clusters <sup>34</sup> (A16 – A18)	1 in $10^{53}$
Configuration of galaxies <sup>35</sup> (A16 – A18)	1 in $10^{135}$
Configuration of a star in relation to a life bearing planet <sup>36</sup> (A19)	1 in $10^{108}$
Configuration of a planetary system in relation to a life bearing planet <sup>37</sup> (A19)	1 in $10^{112}$
Configuration of a planet <sup>38</sup> (A20)	1 in $10^{281}$
Configuration of a satellite (moon) in relation to a life bearing planet <sup>39</sup> (A20)	1 in $10^{16}$
Configuration of a planet's surface in order to produce advanced life <sup>40</sup> (A21)	1 in $10^{106}$
Configuration of a planet's ecosystems in order to produce advanced life <sup>41</sup> (A22)	1 in $10^{390}$

- 5.4 In order for mankind to evolve, a number of events were required to produce and change the DNA so that it achieved the right combination of 25 000 genes<sup>42</sup> coding for the 2 million different proteins<sup>43</sup> required in the human body.
- 5.5 The events themselves are uninteresting, they could have happened in many different ways and not necessarily in a specific sequence<sup>44</sup>. What is very interesting, however, is the configuration of the genes and proteins which resulted from the events. Genes

<sup>30</sup> Roger Penrose, *The Emperor's New Mind*, Penguin Books 1989, pages 339-345.

<sup>31</sup> <http://www.physics.queensu.ca/~phys216/ch21B.pdf>, accessed 2014-03-29

<sup>32</sup> Susskind, Dyson and Kleban, <http://arxiv.org/pdf/hep-th/0208013v3.pdf>, accessed 2014-03-22

<sup>33</sup> Michail Shifman, [www.arxiv.org/pdf/1211.0004.pdf](http://www.arxiv.org/pdf/1211.0004.pdf), accessed 2014-03-22

<sup>34</sup> Hugh Ross, [http://www.reasons.org/files/compendium/compendium\\_Part4\\_ver2.pdf](http://www.reasons.org/files/compendium/compendium_Part4_ver2.pdf), page 5, accessed 2014-03-22

<sup>35</sup> Ibid, page 13.

<sup>36</sup> Ibid, page 18.

<sup>37</sup> Ibid, page 23.

<sup>38</sup> Ibid, page 30.

<sup>39</sup> Ibid, page 31.

<sup>40</sup> Ibid, page 35.

<sup>41</sup> Ibid, page 40.

<sup>42</sup> Estimated. <http://www.genome.gov/>

<sup>43</sup> Estimated. <http://www.proteinatlas.org/>, <http://www.uniprot.org/>

<sup>44</sup> Origin of new genes, <http://faculty.washington.edu/wjs18/Newgenes.pdf>, accessed 2014-03-23

mutate and proteins fold. The mutations must result in specified information (template for a protein) and the new folds must lead to new proteins with specified functions.

- 5.6 The total possible different ways genes and proteins can assemble is called configuration space<sup>45</sup>, and just as a bike lock with three dials must be set at the right combination to work (unlock), a gene and a protein must also hit the right combination (configuration of code and fold) to work. The table below shows various configurations and the probability that a configuration is functional.

Configuration	Probability
Stable functional protein consisting of 150 amino acids forming in a pre-biotic soup <sup>46</sup>	1 in 10 <sup>164</sup>
Old protein folding into new structure with new function <sup>47</sup>	1 in 10 <sup>30</sup>
Simple cell with 12 already existing functional proteins <sup>48</sup>	1 in 10 <sup>63</sup>
Specified information of higher life forms consisting of 2 000 genes, each chosen from 10 <sup>20</sup> proper nucleotide sequences <sup>49</sup>	1 in 10 <sup>40 000</sup>
From single-celled configuration to humanoid configuration <sup>50</sup>	1 in 10 <sup>1 000 000</sup>
From bacteria configuration to technologically advanced human configuration <sup>51</sup>	1 in 10 <sup>24 000 000</sup>

The configuration space of a protein consisting of 200 amino acids is 10<sup>260</sup> possible combinations<sup>52</sup>.

- 5.7 The total number of events that can occur under specific circumstances is called probabilistic resources. For the observable universe (our universe), the probabilistic resources are calculated as follows:

Element	Number
Age of the universe in seconds (assuming an age between 10 – 20 billion years) X	10 <sup>25</sup>
Number of elementary particles X	10 <sup>80</sup>
Number of possible interactions <i>per second</i> (assuming one per Planck time) X	10 <sup>45</sup>
= Total number of events that can have occurred since the origin of the universe <sup>53</sup>	<b>10<sup>150</sup></b>

In order to test all possible configurations of *one* protein consisting of 200 amino acids *once*, 10<sup>67</sup> times the age of the observable universe is required<sup>54</sup>.

- 5.8 Paragraphs 5.3 – 5.7 justify the theistic assumptions T04 and T05 of purpose and divine intention:

T04	for mankind	A04	without purpose
T05	whom He created	A05	inhabited by evolutionary accidents

<sup>45</sup> <http://www.biomedcentral.com/1471-2105/6/49>, accessed 2014-03-23

<sup>46</sup> Meyer, Signature in the Cell, HarperOne, 2009, page 212.

<sup>47</sup> <http://bio-complexity.org/ojs/index.php/main/article/view/BIO-C.2011.1>, page 12, accessed 2014-03-23

<sup>48</sup> [http://www.iscid.org/papers/Mullan\\_PrimitiveCell\\_112302.pdf](http://www.iscid.org/papers/Mullan_PrimitiveCell_112302.pdf), accessed 2014-03-23

<sup>49</sup> Sir Fred Hoyle, November 12, 1981 *Nature*, page 105 (text box on Kellogg symposium).

<sup>50</sup> Francisco Ayala quoted in <http://theophysics.host56.com/pdf/tipler-intelligent-life-in-cosmology.pdf>, accessed 2014-04-02

<sup>51</sup> <http://rsta.royalsocietypublishing.org/content/310/1512/347.abstract>, quoted in Ross, *More than a Theory*, Baker Books, 2009, page 183.

<sup>52</sup> Kauffman, *Investigations*, Oxford University Press, 2002 page 144.

<sup>53</sup> Dembski, <http://www.leaderu.com/offices/dembski/docs/CHANCEGAPS.pdf>, accessed 2014-03-23

<sup>54</sup> Kauffman, *Investigations*, Oxford University Press, 2002 page 144.

5.9 We observe that the same paragraphs challenge the M-atheistic assumption A05. The overwhelming scientific evidence presented to support the M-atheistic narrative seems to be mathematically impossible. On the other hand, the evidence for the evolution of both the universe and mankind is as unquestionable as scientific evidence can be.

5.10 We thus conclude that evolution is true but that the mathematical model of the universe indicates that chance and necessity alone do not suffice to explain the present configuration of mankind and her environment.

5.11 The theistic and the M-atheistic worldviews differ as to the explanation of the improbability of the configuration of mankind and her environment:

Theist:            p(God) > 0,            thus God explains everything<sup>55</sup>.  
 M-atheist:        p(Multiverse) > 0,    thus the multiverse explains everything<sup>56</sup>.

5.12 These are some characteristics of a multiverse:

1. Anything that can happen will happen an infinite number of times<sup>57</sup>
2. Highly unlikely unusual events must happen<sup>58</sup>
3. The distance to a perfect copy of yourself is  $10^{10 \wedge 29}$  meters<sup>59</sup>
4. Random events will lead to any possible configuration of atoms in an infinite number of universes<sup>60</sup>

We therefore conclude that the M-atheistic view that a multiverse explains everything is as valid as the theistic view that God explains everything.

5.13 The M-atheistic multiverse proposition leads to an intriguing observation. Given the right circumstances, by chance and necessity, there will be a natural and materialistic explanation for a number of highly improbable events:

- p(Moon is made of cheese in some universe) > 0<sup>61</sup>
- p(Virgin birth in some universe) > 0
- p(Man walked on water in some universe) > 0
- p(Man rose from the dead in some universe) > 0
- p(New Testament accounts are true in some universe) > 0
- p(New Testament accounts are true in our universe) > 0

We therefore conclude that the M-atheistic view that a multiverse explains everything even makes it perfectly rational to believe in the New Testament's eye witness accounts. Consequently, a new issue arises: We need to understand the rationale behind the atheistic opposition against the accounts in the New Testament.

<sup>55</sup> This is generally referred to as "God of the gaps" and is therefore very unpopular as an argument.

<sup>56</sup> This is never referred to as "Multiverse of the gaps" and is therefore very popular as an argument.

<sup>57</sup> <http://en.wikipedia.org/wiki/Multiverse>

<sup>58</sup> [www.listverse.com/2013/02/22/10-mind-bending-implications-of-the-many-worlds-theory/](http://www.listverse.com/2013/02/22/10-mind-bending-implications-of-the-many-worlds-theory/), accessed 2014-03-23

<sup>59</sup> Tegmark, [http://space.mit.edu/home/tegmark/PDF/multiverse\\_sciam.pdf](http://space.mit.edu/home/tegmark/PDF/multiverse_sciam.pdf), accessed 2014-03-23

<sup>60</sup> <http://www.preposterousuniverse.com/blog/2006/08/01/boltzmanns-anthropic-brain/>, accessed 2014-03-23. See also [http://en.wikipedia.org/wiki/Boltzmann\\_distribution](http://en.wikipedia.org/wiki/Boltzmann_distribution), accessed 2014-03-23.

<sup>61</sup> <http://www.hawking.org.uk/the-origin-of-the-universe.html>, accessed 2014-03-23

5.14 The mathematical model of the universe has led to the following assessment status:

Theistic framework		M-atheistic framework	
T01	Cosmos began to exist	A01	Cosmos began to exist
T02	created by a loving God	A02	created by itself
T03	from absolutely nothing	A03	from virtually nothing
T04	for mankind	A04	without purpose
T05	whom He created	A05	inhabited by evolutionary accidents
T06	with free will and an immortal soul.	A06	whose ideas are illusory.

5.15 The support for the theistic model of reality has increased, whereas the incoherence of the M-atheistic model has reached a new level. If the multiverse exists then

$$p(\text{Any religion is true in some universe}) > 0$$

Hence, the M-atheistic model of reality is not an atheistic but a *polytheistic* model of reality. However, the gods in an M-atheistic polytheistic multiverse (sic) must have evolved through materialistic means<sup>62</sup>.

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<sup>62</sup> <http://www.popularmechanics.com/science/sciences-greatest-unsolved-mysteries-creating-life>, accessed 2014-03-23. See also <http://www.wired.com/wiredscience/2009/05/ribonucleotides/>

## Feedback 3 – Status after assessment of the mathematical model

After assessment of the mathematical model of the universe, two more issues in the theistic issue log have been resolved.

### *Theistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	T01	Minor	The assumption that Cosmos began to exist needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	T02	Minor	The assumption that Cosmos was created by God needs to be justified.	<b>Resolved</b> 4.12 A transition from nothing to something requires volition by someone or something with the characteristics ascribed to God.
3	T02	Minor	The assumption that God is loving needs to be justified.	Not resolved
4	T03	Minor	The assumption that Cosmos was created from absolutely nothing needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that the transition must have been from absolutely nothing to something.
5	T04	Minor	The assumption that Cosmos was created for mankind needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
6	T05	Minor	The assumption that mankind was created by God needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
7	T06	Minor	The assumption that humans have free will needs to be justified.	<b>Resolved</b> 4.26 Benjamin Libet's experiment indicates that something other than biochemical processes act when a volitional motor action is aborted.
8	T06	Minor	The assumption that humans have an immortal soul needs to be justified.	Not resolved

After assessment of the mathematical model of the universe, the assumptions regarding a multiverse have been strengthened. However, this raises questions as to the rationale behind being an M-atheist when the M-atheistic model of reality one proposes makes all thinkable religions true in some universe.

### *M-atheistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	A01	Minor	Whether Cosmos began to exist or has always existed needs to be resolved.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	A02 (A07-08)	Major	The assumption that Cosmos created itself before it existed needs to be justified.	Not resolved
3	A03	Minor	The assumption that Cosmos was created from virtually nothing needs to be justified.	<b>Resolved</b> 4.10 There are numerous scientific theories justifying the assumption that at some point in the history of Cosmos, there was a transition from something to something else.
4	A04	Minor	The assumption that Cosmos is without purpose needs to be justified.	Not resolved See also issue number 2. Issue numbers 2 and 4 probably depend on the same justification.
5	A05	Minor	The assumption that mankind is an evolutionary accident needs to be justified.	<b>Resolved</b> 4.21 The scientific evidence for evolution by way of chance and necessity is overwhelming. This assumption is extremely well justified.
6	A06	Major	The assumption that the ideas of humans are illusory needs to be justified.	<b>Showstopper</b> 4.22 – 4.24 The assumption is thoroughly justified. The model is the result of chance, see issue number 5.
7	5.12	Minor	If anything can happen in a multiverse, why can't the New Testament accounts have happened in our universe?	Not resolved

## Use test

- 6.1 Article 120 in the Solvency II directive<sup>63</sup> requires that insurance companies demonstrate that their model of reality is widely used and plays an important role in decision making processes. It is called a **use test** and proves that the insurance company really believes in the model.
- 6.2 Insurance companies seldom, if ever, express an opinion about whether  $p(\text{God}) > 0$  or  $p(\text{God}) = 0$ . Nor does it matter for their business which one of these propositions is true. Furthermore, an actuary<sup>64</sup> would not be taken seriously if he or she proposed to model God's intervention or lack of intervention in the world, primarily because the whims of a supreme being are exceedingly hard to model.
- 6.3 Insurance companies seldom express an opinion about whether  $p(\text{Multiverse}) = 0$  or  $p(\text{Multiverse}) > 0$ , either. But the difference between a multiverse and a single universe greatly impacts their business due to the implications the two options have on probabilities, which lie at the core of an insurance company's business.
- 6.4 We will therefore use observations from reality to decide which of the models the insurance industry and their stakeholders (i.e. people in general) live by: A one universe sample as in the theistic model or a multiverse sample as in the M-atheistic model<sup>65</sup>.
- 6.5 The first observation we need is how insurance companies and various stakeholders view sequences of highly improbable events.

Events leading to a highly improbable outcome	(M-atheist?)	(Theist?)	Insurance companies	Police	Courts
One event	Chance	Chance	Chance	Chance	Chance
Two events	Chance	Intent <sup>66</sup>	Chance	Chance	Chance
Three events	Chance	Intent	Intent <sup>67</sup>	Chance	Chance
Four events	Chance	Intent	Intent	Intent <sup>68</sup>	Chance
Five events	Chance	Intent	Intent	Intent	Intent <sup>69</sup>

<sup>63</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:335:FULL:EN:PDF>, The Solvency II directive, accessed 2014-03-13

<sup>64</sup> Actuaries are experts at insurance mathematics, i.e. modeling future events based on past events.

<sup>65</sup> The reason for using the insurance industry as a point of reference is that they are experts at modeling reality.

<sup>66</sup> Suspicion of design.

<sup>67</sup> Suspicion of fraud.

<sup>68</sup> Suspicion of crime.

<sup>69</sup> Compelling evidence.

6.6 The second observation we need is whether stakeholders around insurance companies use single universe rationality or multiverse rationality in every day decision making.

<i>Stakeholder</i>	<i>One universe rationality</i>	<i>Multiverse rationality</i>
<b>Owners</b>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Ownership is profitable}) &gt; 0</math></li> <li>2. Invest in insurance companies</li> <li>3. Hire good management</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Anything can happen}) = 1</math></li> <li>2. Ownership = Gambling</li> <li>3. Don't invest in insurance companies</li> </ol>
<b>Management</b>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Bonus}) &gt; 0</math> if company is profitable</li> <li>2. Hire good actuaries</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Anything can happen}) = 1</math></li> <li>2. No need for actuaries</li> <li>3. Fire all actuaries</li> </ol>
<b>Actuaries</b>	<ol style="list-style-type: none"> <li>1. <math>p(\text{High salary}) &gt; 0</math> if company outperforms competition</li> <li>2. Excel in probability distribution forecasts</li> <li>3. Make sure that the model of reality truly reflects reality</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Anything can happen}) = 1</math></li> <li>2. No need for actuaries</li> <li>3. Don't work in insurance</li> </ol>
<b>Customers</b>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Money back}) = 1</math> if insurance company's model of reality is accurate</li> <li>2. Buy insurance in profitable insurance company</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>p(\text{Anything can happen}) = 1</math></li> <li>2. Insurance is worse than gambling<sup>70</sup></li> <li>3. Don't buy insurance, buy lottery tickets instead</li> </ol>

6.7 In Sweden, we note that insurance companies still exist and that 99% of households with children have insurance<sup>71</sup>. In a multiverse, this behavior would be highly irrational.

6.8 Finally, we need to observe how the scientific community treats highly improbable anomalies in scientific hypotheses testing.

<i>Scientific observation</i>	<i>One universe conclusion</i>	<i>Multiverse conclusion</i> <sup>72</sup>
<b>One anomaly observed</b>	The anomaly is an anomaly and is thus rejected from the sample.	The anomaly can represent the true result whereas the rest of the results are anomalies.
<b>No anomalies observed</b>	There are no anomalies in the sample.	The entire sample can consist of anomalies.

6.9 We note that scientists never mention the multiverse as a potential source of error regarding results and observations. This is true even for scientists who work with evolution and for scientists who propose that the multiverse theory is falsifiable<sup>73</sup>.

6.10 Based on 6.5 – 6.9, we conclude that the justified M-atheistic proposition that  $p(\text{Multiverse}) > 0$  fails the use test. Despite *Chance* being fully justified in the M-atheistic model, the model's proponents apparently don't trust in it. So, neither does the supervisor.

6.11 In paragraph 5.12 we discovered that a multiverse makes  $p(\text{God}) = 0$  false. However, this conclusion is only valid for physical gods<sup>74</sup> and not for metaphysical ones.

<sup>70</sup> Buying insurance potentially gives you the money back. Buying a lottery ticket potentially makes you a millionaire.

<sup>71</sup> <http://www.svenskforsakring.se>, accessed 2014-03-23

<sup>72</sup> "Conclusion" may be the wrong word in this context. "Confusion" would be more appropriate.

<sup>73</sup> All observations can be faulty. In an infinite number of universes they are.

<sup>74</sup> <http://www.thesims.com/en-us/>, accessed 2014-04-04

6.12 We must therefore also use observations from reality to decide which of the models Christians generally live by,  $p(\text{God}) > 0$  or  $p(\text{God}) = 0$ .

6.13 The rules that Christians should follow are as follows:

T21	Thou shalt have none other gods before me.
T22	Thou shalt not make thee [any] graven image, [or] any likeness [of any thing] that [is] in heaven above, or that [is] in the earth beneath, or that [is] in the waters beneath the earth Thou shalt not bow down thyself unto them, nor serve them: for I the LORD thy God [am] a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth [generation] of them that hate me, And shewing mercy unto thousands of them that love me and keep my commandments.
T23	Thou shalt not take the name of the LORD thy God in vain: for the LORD will not hold [him] guiltless that taketh his name in vain.
T24	Keep the sabbath day to sanctify it, as the LORD thy God hath commanded thee. Six days thou shalt labour, and do all thy work: But the seventh day [is] the sabbath of the LORD thy God: [in it] thou shalt not do any work, thou, nor thy son, nor thy daughter, nor thy manservant, nor thy maidservant, nor thine ox, nor thine ass, nor any of thy cattle, nor thy stranger that [is] within thy gates; that thy manservant and thy maidservant may rest as well as thou. And remember that thou wast a servant in the land of Egypt, and [that] the LORD thy God brought thee out thence through a mighty hand and by a stretched out arm: therefore the LORD thy God commanded thee to keep the sabbath day.
T25	Honour thy father and thy mother, as the LORD thy God hath commanded thee; that thy days may be prolonged, and that it may go well with thee, in the land which the LORD thy God giveth thee.
T26	Thou shalt not kill.
T27	Neither shalt thou commit adultery.
T28	Neither shalt thou steal.
T29	Neither shalt thou bear false witness against thy neighbour.
T30	Neither shalt thou desire thy neighbour's wife, neither shalt thou covet thy neighbour's house, his field, or his manservant, or his maidservant, his ox, or his ass, or any [thing] that [is] thy neighbour's.

6.14 We note that God basically commands mankind to worship only Him, avoid injury to other people, be honest, maintain family bonds, rest regularly, be kind to employees, and all in all maintain a stable society by honoring His law.

6.15 We observe that 99% of all Christians are just as good and bad as everybody else and not particularly successful at keeping these commandments<sup>75</sup>.

6.16 We therefore conclude that Christians act as if  $p(\text{God}) = 0$ . Hence, even the justified theistic proposition that  $p(\text{God}) > 0$  fails the use test. Despite *God* being fully justified in the theistic model, the model's proponents apparently don't trust in Him. So, neither does the supervisor.

<sup>75</sup> The observation has no statistical basis but is deduced from the fact that Christians in general are humans and not saints. Furthermore, people tend to worship money more than anything else, a tendency even found among Christians.

6.17 The use tests have thus led to the following assessment status:

Theistic framework		M-atheistic framework	
T01	Cosmos began to exist	A01	Cosmos began to exist
T02	created by a loving God	A02	created by itself
T03	from absolutely nothing	A03	from virtually nothing
T04	for mankind	A04	without purpose
T05	whom He created	A05	inhabited by evolutionary accidents
T06	with free will and an immortal soul.	A06	whose ideas are illusory

6.18 **Everybody** (the insurance industry, their owners, employees and clients, as well as scientists, the police and courts, atheists, M-atheists and theists), apply the proposition  $p(\text{Multiverse}) = 0$  in the every-day decisions they make.

6.19 The mathematically justified proposition  $p(\text{Multiverse}) > 0$  may be true but the proposition fails the use test because it is only applied to selected elements of the model.

6.20 The mathematically justified proposition  $p(\text{God}) > 0$  may also be true but this proposition also fails the use test because Christians in general tend to act as if  $p(\text{God}) = 0$ .

6.21 Obviously, both Christians and atheists do a fair share of cherry-picking.

## Feedback 4 – Status after assessment of the use test

The theistic model of reality failed the use test.

### *Theistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	T01	Minor	The assumption that Cosmos began to exist needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	T02	Minor	The assumption that Cosmos was created by God needs to be justified.	<b>Resolved</b> 4.12 A transition from nothing to something requires volition by someone or something with the characteristics ascribed to God.
3	T02	Minor	The assumption that God is loving needs to be justified.	Not resolved
4	T03	Minor	The assumption that Cosmos was created from absolutely nothing needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that the transition must have been from absolutely nothing to something.
5	T04	Minor	The assumption that Cosmos was created for mankind needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
6	T05	Minor	The assumption that mankind was created by God needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
7	T06	Minor	The assumption that humans have free will needs to be justified.	<b>Resolved</b> 4.26 Benjamin Libet's experiment indicates that something other than biochemical processes act when a volitional motor action is aborted.
8	T06	Minor	The assumption that humans have an immortal soul needs to be justified.	Not resolved
9	6.15	Major	Failed use test. Theists in general act as if p(God) = 0.	<b>Showstopper</b>

The M-atheistic model of reality failed the use test.

***M-atheistic issue log***

Issue no.	Model reference	Severity	Description	Status
1	A01	Minor	Whether Cosmos began to exist or has always existed needs to be resolved.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	A02 (A07-08)	Major	The assumption that Cosmos created itself before it existed needs to be justified.	Not resolved
3	A03	Minor	The assumption that Cosmos was created from virtually nothing needs to be justified.	<b>Resolved</b> 4.10 There are numerous scientific theories justifying the assumption that at some point in the history of Cosmos, there was a transition from something to something else.
4	A04	Minor	The assumption that Cosmos is without purpose needs to be justified.	Not resolved See also issue number 2. Issue numbers 2 and 4 probably depend on the same justification.
5	A05	Minor	The assumption that mankind is an evolutionary accident needs to be justified.	<b>Resolved</b> 4.21 The scientific evidence for evolution by way of chance and necessity is overwhelming. This assumption is extremely well justified.
6	A06	Major	The assumption that the ideas of humans are illusory needs to be justified.	<b>Showstopper</b> 4.22 – 4.24 The assumption is thoroughly justified. The model is the result of chance, see issue number 5.
7	5.12	Minor	If anything can happen in a multiverse, why can't the New Testament accounts have happened in our universe?	Not resolved
8	6.10	Major	Failed use test. M-atheists in general act as if $p(\text{Multiverse}) = 0$ .	<b>Showstopper</b>

## Purpose

- 7.1 When a model of reality fails the use test, the first thing a supervisor wants to know is what the purpose of the model then might be. If a model which claims to be true is not used for decision making, its purpose is usually deception.
- 7.2 The M-atheistic model claims that nature caused nature and that Cosmos and all that it contains therefore has *no purpose*. Incoherence (A02) can however never justify an assumption. But the incoherence in the M-atheistic model is also so obvious that we would be hard pressed to conclude that the purpose of the model is to deceive people<sup>76</sup>.
- 7.3 By contrast, the theistic model claims that God caused nature and that the purpose of Cosmos is *mankind*. This claim is sufficiently self-centered to cause a fair amount of suspicion, especially given the human desire for money and power. Religion is probably one of the most powerful means of deception available to people with foul intentions.
- 7.4 Curiously, mankind's less admirable characteristics are all part of the theistic model:
1. God created Cosmos for mankind.
  2. But God knew that a being with free will and sufficient means to use it at some point would create trouble<sup>77</sup>, i.e. fail the use test.
  3. Therefore, God arranged for a solution.
  4. The solution is Jesus of Nazareth who claimed that
    - a.  $p(\text{God}) = 1$ ,
    - b.  $p(\text{Immortal soul}) = 1$ ,
    - c.  $p(\text{Man acts as if } p(\text{God}) = 0) = 1$ ,
    - d. Therefore  $p(\text{Immortal soul}) = 0$ ,
    - e. But  $p(\text{Jesus is the Son of God}) = 1$ ,
    - f. Therefore  $p(\text{Immortal soul}) = 1$  again,
    - g. But at some unspecified time in the future there will be a reckoning, for beings with free will are accountable for their actions,
    - h. But if you accept the proposition that  $p(\text{Jesus is the Son of God}) > 0$ , then God will let bygones be bygones,
    - i. Thus  $p(\text{God is loving}) = 1$ .
  5. Then Jesus died and rose again three days later to prove his point.
  6. Thus, the purpose of the theistic model of reality is not deceit but salvation<sup>78</sup>.
- 7.5 From a supervisory point of view this is not only suspicious but quite a handful<sup>79</sup>. In order to accept assumptions like these, we need very good justification.

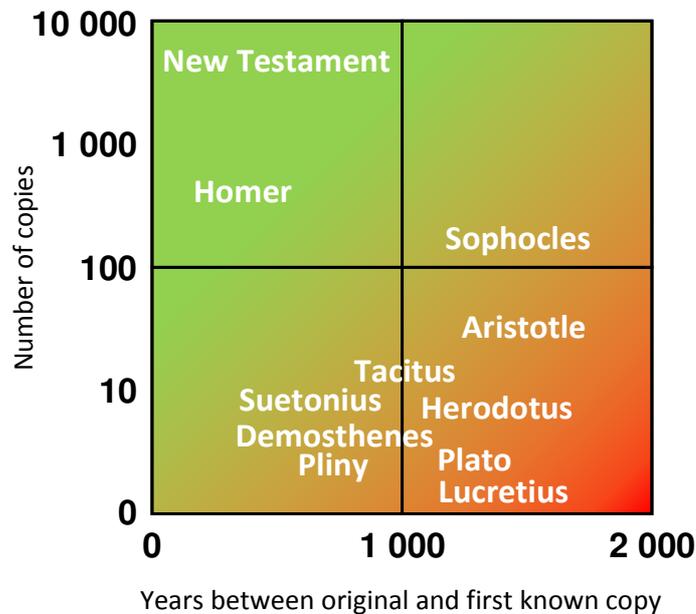
<sup>76</sup> People in general are smart enough to identify incoherence when they see it.

<sup>77</sup> <http://www.merriam-webster.com/dictionary/teenage>, accessed 2014-03-30

<sup>78</sup> Until that unspecified time in the future, man will have to do the best he can with  $p(\text{God}) = 1$  in his heart,  $p(\text{God}) > 0$  in his mind and  $p(\text{God}) = 0$  looming in every day choices, knowing that there is a fair measure of accountability when making those choices.

<sup>79</sup> Understatement.

- 7.6 The justification that Christians offer is eye witness accounts of 7.4.4 and 7.4.5 which are approximately two thousand years old, the New Testament. We must therefore assess if the New Testament is reliable.
- 7.7 First, we must decide whether the New Testament is authentic. We do that by comparing it to other historic manuscripts<sup>80</sup>:



Homer: ancient greek poet<sup>81</sup>

Sophocles: ancient greek tragedian<sup>82</sup>

Aristotle: ancient greek philosopher<sup>83</sup>

Tacitus: senator and historian of the Roman empire<sup>84</sup>

Suetonius: Roman historian<sup>85</sup>

Herodotus: Greek historian<sup>86</sup>

Demosthenes: Greek statesman and orator<sup>87</sup>

Pliny: Roman lawyer and author<sup>88</sup>

Plato: Greek philosopher<sup>89</sup>

Lucretius: Roman poet and philosopher<sup>90</sup>

<sup>80</sup> [http://deeperstudy.com/link/manuscript\\_list.html](http://deeperstudy.com/link/manuscript_list.html), accessed 2014-04-09

<http://carm.org/manuscript-evidence>, accessed 2014-04-09

<sup>81</sup> <http://en.wikipedia.org/wiki/Homer>

<sup>82</sup> <http://en.wikipedia.org/wiki/Sophocles>

<sup>83</sup> <http://en.wikipedia.org/wiki/Aristotle>

<sup>84</sup> <http://en.wikipedia.org/wiki/Tacitus>, see also

[http://en.wikisource.org/wiki/The\\_Annals\\_\(Tacitus\)/Book\\_15#44](http://en.wikisource.org/wiki/The_Annals_(Tacitus)/Book_15#44)

<sup>85</sup> <http://en.wikipedia.org/wiki/Suetonius>, see also

[http://en.wikipedia.org/wiki/Suetonius\\_on\\_Christians](http://en.wikipedia.org/wiki/Suetonius_on_Christians)

<sup>86</sup> <http://en.wikipedia.org/wiki/Herodotus>

<sup>87</sup> <http://en.wikipedia.org/wiki/Demosthenes>

<sup>88</sup> [http://en.wikipedia.org/wiki/Pliny\\_the\\_Younger](http://en.wikipedia.org/wiki/Pliny_the_Younger)

<sup>89</sup> <http://en.wikipedia.org/wiki/Plato>

<sup>90</sup> <http://en.wikipedia.org/wiki/Lucretius>

7.8 Second, we must determine how close the reports are to the events they describe and the characteristics of the alleged authors and their testimonies. Jesus of Nazareth was crucified on Friday, April 3, AD 33<sup>91</sup>.

<i>Testament</i> <sup>92</sup>	<i>p(Characteristic)</i>	<i>p(AD written – earliest / average)</i>
<b>Mark</b> translator writing for Peter?	<b>Urgent report</b>	<b>40 / 59 – 63</b>
<b>Matthew</b> publican tax collector?	<b>Calm report</b>	<b>37 / 62 – 69</b>
<b>Luke</b> physician?	<b>Data collection</b>	<b>50 / 64 – 68</b>
<b>John</b> middle class?	<b>Memoirs (many names)</b>	<b>40 / 86 – 94</b>
<b>Acts</b> Luke et al	<b>Progress reports</b>	<b>57 / 67 – 68</b>
<b>Letters</b> Paul (Saul of Tarsus) et al	<b>Reminders</b>	<b>50 – 75 / 50 – 70</b>

7.9 From 7.7 and 7.8 we conclude that the New Testament accounts are authentic<sup>93</sup>.

7.10 The accounts in the New Testament relay eye witness accounts of the following:

1. An empty tomb.
2. Women who discover it.
3. Apostles who change from terrified to outspoken and courageous.

7.11 We observe that all three events must have caused considerable contemporary amazement and that the New Testament therefore is reliable:

1. Contemporary Jewish polemic confirms the empty tomb.
2. Men usually take the honor for grand discoveries.
3. The change of attitude was fatal.

7.12 We note that each of the observations in 7.10 may have perfectly natural explanations, however farfetched. We also note that one event may explain all three of them simultaneously: Jesus of Nazareth had left the tomb alive and met the apostles<sup>94</sup>.

7.13 Thus, the Christian assumption that Jesus was who he claimed to be is justified. Consequently, the assumptions that God is loving and that man has an immortal soul are also justified.

7.14 Applying a level playing field when assessing the two models has thus lead to the following final view:

	<b>Theistic framework</b>		<b>M-atheistic framework</b>
<b>T01</b>	<b>Cosmos began to exist</b>	<b>A01</b>	<b>Cosmos began to exist</b>
<b>T02</b>	<b>created by a loving God</b>	<b>A02</b>	<b>created by itself</b>
<b>T03</b>	<b>from absolutely nothing</b>	<b>A03</b>	<b>from virtually nothing</b>
<b>T04</b>	<b>for mankind</b>	<b>A04</b>	<b>without purpose</b>
<b>T05</b>	<b>whom He created</b>	<b>A05</b>	<b>inhabited by evolutionary accidents</b>
<b>T06</b>	<b>with free will and an immortal soul.</b>	<b>A06</b>	<b>whose ideas are illusory</b>

<b>Fully justified assumptions</b>	<b>Unjustified assumptions</b>	<b>Showstoppers / Not resolved</b>
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<sup>91</sup> <http://www.christianpost.com/news/new-study-reveals-exact-date-jesus-was-crucified-scientists-claim-75562/>, accessed 2014-04-05

<sup>92</sup> <http://www.errantskeptics.org/DatingNT.htm>, accessed 2014-04-05

<sup>93</sup> Note that we do not conclude that the accounts are true. We only conclude that the accounts are contemporary and that they have not been changed since the events.

<sup>94</sup> [http://en.wikipedia.org/wiki/Occam's\\_razor](http://en.wikipedia.org/wiki/Occam's_razor), accessed 2014-04-03

## Feedback 5 – Status after assessment of purpose

The theistic model of reality is coherent and fully justified but fails the use test. Curiously, a failed use test is part of the model, justifying the assumptions that God is loving and that mankind is created with an immortal soul.

The failed use test also adds purpose to the model, covering free will, accountability and salvation. The theistic model of reality is therefore not a model of deceit but a model of great hope.

### *Theistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	T01	Minor	The assumption that Cosmos began to exist needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	T02	Minor	The assumption that Cosmos was created by God needs to be justified.	<b>Resolved</b> 4.12 A transition from nothing to something requires volition by someone or something with the characteristics ascribed to God.
3	T02	Minor	The assumption that God is loving needs to be justified.	<b>Resolved</b> 7.7 – 7.12 Reliable New Testament accounts justify the assumption.
4	T03	Minor	The assumption that Cosmos was created from absolutely nothing needs to be justified.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that the transition must have been from absolutely nothing to something.
5	T04	Minor	The assumption that Cosmos was created for mankind needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
6	T05	Minor	The assumption that mankind was created by God needs to be justified.	<b>Resolved</b> 5.3 – 5.10 Mathematical improbabilities justify the assumption.
7	T06	Minor	The assumption that humans have free will needs to be justified.	<b>Resolved</b> 4.26 Benjamin Libet's experiment indicates that something other than biochemical processes act when a volitional motor action is aborted.
8	T06	Minor	The assumption that humans have an immortal soul needs to be justified.	<b>Resolved</b> 7.7 – 7.12 Reliable New Testament accounts justify the assumption.
9	6.13	Major	Failed use test. Theists in general act as if $p(\text{God}) = 0$ .	<b>Showstopper</b> Christians believe that the failed use test has been <b>resolved through Jesus</b> of Nazareth, ref. 7.4.6.

The M-atheistic model of reality is incoherent and lacks justification of nature creating itself before it existed. We also need a reasonable explanation as to why certain natural events can not happen in a cosmos where anything that can happen will happen.

The model also fails the use test but its incoherence is so obvious that we do not suspect fraudulent intent. Actually, the model itself insists that volition, intent and purpose do not exist beyond the illusory ideas of those who purport them.

The M-atheistic model of reality is therefore not a model of deceit but a model of great confusion.

### *M-atheistic issue log*

Issue no.	Model reference	Severity	Description	Status
1	A01	Minor	Whether Cosmos began to exist or has always existed needs to be resolved.	<b>Resolved</b> 4.7 The BVG theorem and Constructor theory confirm that Cosmos can not be infinite in the past.
2	A02 (A07-08)	Major	The assumption that Cosmos created itself before it existed needs to be justified.	Not resolved
3	A03	Minor	The assumption that Cosmos was created from virtually nothing needs to be justified.	<b>Resolved</b> 4.10 There are numerous scientific theories justifying the assumption that at some point in the history of Cosmos, there was a transition from something to something else.
4	A04	Minor	The assumption that Cosmos is without purpose needs to be justified.	Not resolved See also issue number 2. Issue numbers 2 and 4 probably depend on the same justification.
5	A05	Minor	The assumption that mankind is an evolutionary accident needs to be justified.	<b>Resolved</b> 4.21 The scientific evidence for evolution by way of chance and necessity is overwhelming. This assumption is extremely well justified.
6	A06	Major	The assumption that the ideas of humans are illusory needs to be justified.	<b>Showstopper</b> 4.22 – 4.24 The assumption is thoroughly justified. The model is the result of chance, see issue number 5.
7	5.12	Minor	If anything can happen in a multiverse, why can't the New Testament accounts have happened in our universe?	Not resolved
8	6.11	Major	Failed use test. M-atheists in general act as if $p(\text{Multiverse}) = 0$ .	<b>Showstopper</b>

## Recommendations

### To proponents of the Christian theistic model

- 8.1 Make it evident that you believe in it. As all the assumptions in the Christian theistic model are justified, evidence of use in daily decision making is the only remaining requirement to fulfill in order to get the model approved. The concept of hope and accountability beyond human consensus also appears appropriate<sup>95</sup>.

### To proponents of the M-atheistic model

- 8.2 Resolve the incoherence<sup>96</sup>. That something can cause itself before it exists is not very convincing, nor that mankind is a haphazard biochemical machine capable of discerning truth in a cosmos where anything<sup>97</sup> and everything can happen.
- 8.3 Stop buying insurance. Buying insurance in a multiverse is embarrassingly irrational.
- 8.4 Regarding the use test, we are however reluctant to recommend that you use the model in other decision making situations in order to prove that the model is valid<sup>98</sup>. We are somewhat concerned about the consequences if you raise your kids insisting that they are but biochemical machines with illusory thoughts and emotions.
- 8.5 Until the incoherence in your model is resolved, we fear that the proposition  $p(\text{God}) > 0$  will remain a reasonable alternative for a great number of people.

### To the undecided

- 8.6 Do not base your choice of worldview on this report. Analyze the evidence and draw your own conclusion. Trust the scientific method and follow the advice of the Royal Society, *Nullius in verba*, “take nobody’s word for it”<sup>99</sup>.

### To the indifferent

- 8.7 Volume II of this report will analyze the **Value at Risk** (VaR) with the two different models<sup>100</sup>. *Value at Risk* is a term used to describe what you potentially risk when you invest in something<sup>101</sup>.

<sup>95</sup> [http://en.wikipedia.org/wiki/Rome\\_Statute](http://en.wikipedia.org/wiki/Rome_Statute), accessed 2014-04-03

<sup>96</sup> Needless to say, we expect you to adhere to your worldview and limit inquiry to testable, natural explanations about the natural world (methodological naturalism), ref. Kitzmiller vs. Dover, <http://news.findlaw.com/hdocs/docs/educate/ktzmlldrivr122005opn.pdf>, page 65-66, accessed 2014-04-06

<sup>97</sup> Except events justifying religious conviction.

<sup>98</sup> <http://theconversation.com/genetic-screening-to-enhance-iq-should-be-embraced-24741>, accessed 2014-04-06

<sup>99</sup> In other words, make sure it’s the scientific method before you trust it, <http://royalsociety.org/about-us/history/>, accessed 2014-03-29

<sup>100</sup> <http://igitus.se/list.html>, accessed 2014-04-02

<sup>101</sup> Most people leave investment decisions to other people or institutions. For reasons accounted for elsewhere, we advice against just being a bystander, ref. <http://www.adlibris.com/se/bok/miljardbrevet-en-finansthiller-9789163399961>, accessed 2014-04-02

*Assessment  
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